

WHAT IS CLAIMED IS:

- 1     1.     A housing adapted to receive a circuit board, the housing comprising:  
2             a housing body;  
3             first and second slots formed in the housing body, for guiding the circuit board into  
4             place and retaining the circuit board after the circuit board has been installed into  
5             a final position within the housing body; and  
6             a deflection/retention feature located between the first and second slots, the  
7             deflection/retention feature extending above a plane formed by the circuit board  
8             when the circuit board has been installed into the final position within the  
9             housing body, wherein the deflection/retention feature flexes the circuit board  
10            when ends of the circuit board are first inserted into the first and second slots and  
11            the circuit board is being slid into place, and retains the circuit board after the  
12            circuit board snaps into place and returns to a substantially flat state.
  
- 1     2.     The housing of claim 1 wherein one or both of the first and second slots include a  
2             lower surface that extends farther from a front of the housing body than an upper surface,  
3             thereby simplifying initial alignment of the circuit board into the slot.
  
- 1     3.     The housing of claim 1 and further comprising a curved guide proximate at least one  
2             of the first and second slots, for urging the circuit board toward one of the first or second  
3             slots after the circuit board has been inserted in the other of the first or second slots and  
4             while the circuit board is being flexed by the deflection/retention feature.
  
- 1     4.     The housing of claim 1 and further comprising a curved guide proximate the  
2             deflection/retention feature, for urging the circuit board toward the final position as the  
3             circuit board is slid into place.

1     5.     The housing of claim 1 and further comprising one or more supports that help retain  
2     the circuit board within the housing body after the circuit board has reached the final  
3     position within the housing body.

1     6.     A housing adapted to receive a circuit board, the housing comprising:  
2     a housing body;  
3     first and second slots formed in the housing body, for guiding the circuit board into  
4     place and retaining the circuit board after the circuit board has been installed into  
5     a final position within the housing body, with one or both of the first and second  
6     slots including a lower surface that extends farther from a front of the housing  
7     body than an upper surface, thereby simplifying initial alignment of the circuit  
8     board into the slot;  
9     a deflection/retention feature located between the first and second slots, the  
10    deflection/retention feature extending above a plane formed by the circuit board  
11    when the circuit board has been installed into the final position within the  
12    housing body, wherein the deflection/retention feature flexes the circuit board  
13    when ends of the circuit board are first inserted into the first and second slots and  
14    the circuit board is being slid into place, and retains the circuit board after the  
15    circuit board snaps into place and returns to a substantially flat state;  
16    a first curved guide proximate at least one of the first and second slots, for urging the  
17    circuit board toward one of the first or second slots after the circuit board has  
18    been inserted in the other of the first or second slots and while the circuit board  
19    is being flexed by the deflection/retention feature;  
20    a second curved guide proximate the deflection/retention feature, for urging the  
21    circuit board toward the final position as the circuit board is slid into place; and  
22    one or more supports that help retain the circuit board within the housing body after  
23    the circuit board has reached the final position within the housing body.

1       7.    An assembly comprising:  
2           a circuit board comprising;  
3           a plurality of components mounted on the circuit board, and  
4           a connector for electrically coupling the plurality of components to other circuits.  
5           when the assembly is attached to a system; and  
6       a housing body comprising;  
7           first and second slots formed in the housing body, for guiding the circuit board  
8           into place and retaining the circuit board after the circuit board has been  
9           installed into a final position within the housing body; and  
10          a deflection/retention feature located between the first and second slots, the  
11           deflection/retention feature extending above a plane formed by the circuit  
12           board when the circuit board has been installed into the final position  
13           within the housing body, wherein the deflection/retention feature flexes  
14           the circuit board when ends of the circuit board are first inserted into the  
15           first and second slots and the circuit board is being slid into place, and  
16           retains the circuit board after the circuit board snaps into place and returns  
17           to a substantially flat state.

1       8.    The assembly of claim 7 wherein one or both of the first and second slots of the  
2           housing body include a lower surface that extends farther from a front of the housing body  
3           than an upper surface, thereby simplifying initial alignment of the circuit board into the slot.

1       9.    The assembly claim 7 wherein the housing body further comprises a curved guide  
2           proximate at least one of the first and second slots, for urging the circuit board toward one  
3           of the first or second slots after the circuit board has been inserted in the other of the first or  
4           second slots and while the circuit board is being flexed by the deflection/retention feature.

1     10.   The assembly of claim 7 wherein the housing body further comprises a curved guide  
2     proximate the deflection/retention feature, for urging the circuit board toward the final  
3     position as the circuit board is slid into place.

1     11.   The assembly of claim 7 wherein the housing body further comprises one or more  
2     supports that help retain the circuit board within the housing body after the circuit board has  
3     reached the final position within the housing body.

1     12.   The assembly of claim 7 wherein the connector of the circuit board is guided toward  
2     a connector of opposite gender on the system using one or more alignment posts and one or  
3     more corresponding holes, wherein the one or more alignment posts and the one or more  
4     corresponding holes are distributed among the connector of the circuit board and the  
5     connector of opposite gender on the system.

1     13.   The assembly of claim 12 wherein the alignment posts are tapered.

1     14.   An assembly comprising:  
2     a circuit board comprising;  
3         a plurality of components mounted on the circuit board; and  
4         a connector for electrically coupling the plurality of components to other circuits  
5         when the assembly is attached to a system, wherein the connector of the  
6         circuit board is guided toward a connector of opposite gender on the  
7         system using one or more tapered alignment posts and one or more  
8         corresponding holes, wherein the one or more alignment posts and the  
9         one or more corresponding holes are distributed among the connector of  
10        the circuit board and the connector of opposite gender on the system; and  
11    a housing body comprising;  
12       first and second slots formed in the housing body, for guiding the circuit board  
13       into place and retaining the circuit board after the circuit board has been

14 installed into a final position within the housing body, wherein one or  
15 both of the first and second slots of the housing body include a lower  
16 surface that extends farther from a front of the housing body than an  
17 upper surface, thereby simplifying initial alignment of the circuit board  
18 into the slot;

19 a deflection/retention feature located between the first and second slots, the  
20 deflection/retention feature extending above a plane formed by the circuit  
21 board when the circuit board has been installed into the final position  
22 within the housing body, wherein the deflection/retention feature flexes  
23 the circuit board when ends of the circuit board are first inserted into the  
24 first and second slots and the circuit board is being slid into place, and  
25 retains the circuit board after the circuit board snaps into place and returns  
26 to a substantially flat state;

27 a first curved guide proximate at least one of the first and second slots, for urging  
28 the circuit board toward one of the first or second slots after the circuit  
29 board has been inserted in the other of the first or second slots and while  
30 the circuit board is being flexed by the deflection/retention feature;

31 a second curved guide proximate the deflection/retention feature, for urging the  
32 circuit board toward the final position as the circuit board is slid into  
33 place; and

34 one or more supports that help retain the circuit board within the housing body  
35 after the circuit board has reached the final position within the housing  
36 body.

1 15. A method of assembling a circuit board into a housing to form an assembly  
2 comprising:

3 inserting a first end of the circuit board into a first slot of the housing;

4 flexing the circuit board over a deflection/retention feature;

5 inserting a second end of the circuit board into a second slot of the housing; and

6           pressing the circuit board into place until the circuit board clears the  
7           deflection/retention feature and snaps into place, thereby returning a substantially  
8           flat state.

1       16.   The method of claim 15 wherein inserting a first end of the circuit board into a first  
2       slot of the housing and inserting a second end of the circuit board into a second slot of the  
3       housing each include simplifying initial alignment of the circuit board into the slot by first  
4       contacting a lower surface of the slot that extends farther from a front of the housing than  
5       an upper surface of the slot.

1       17.   The method of claim 15 wherein inserting a second end of the circuit board into a  
2       second slot of the housing includes engaging a curved guide proximate the second slot that  
3       urges the circuit board toward the second slot.

1       18.   The method of claim 15 wherein pressing the circuit board into place until the circuit  
2       board clears the deflection/retention feature and snaps into place includes engaging a curved  
3       guide proximate the deflection/retention feature that urges the circuit board toward a final  
4       position.

1       19.   The method of claim 15 wherein pressing the circuit board into place until the circuit  
2       board clears the deflection/retention feature and snaps into place includes engaging one or  
3       more supports of the housing that help retain the circuit board within the housing after the  
4       circuit board has reached a final position within the housing.

1       20.   The method of claim 15 and further comprising:  
2       attaching the assembly to a system by:  
3       guiding a connector of the circuit board toward a connector of opposite gender  
4       on the system using one or more alignment posts and one or more  
5       corresponding holes, wherein the one or more alignment posts and the

6 one or more corresponding holes are distributed among the connector of  
7 the circuit board and the connector of opposite gender on the system; and  
8 fastening the housing to the system.

1 21. The method of claim 20 wherein the alignment posts are tapered.

1 22. A method of assembling a circuit board into a housing to form an assembly, and  
2 fastening the assembly to a system comprising:

3 inserting a first end of the circuit board into a first slot of the housing by first  
4 contacting a lower surface of the first slot that extends farther from a front of the  
5 housing than an upper surface of the first slot;

6 flexing the circuit board over a deflection/retention feature by engaging a first curved  
7 guide proximate a second slot that urges the circuit board toward the second slot;

8 inserting a second end of the circuit board into the second slot of the housing by first  
9 contacting a lower surface of the second slot that extends farther from a front of  
10 the housing than an upper surface of the second slot;

11 pressing the circuit board into place to engage a second curved guide proximate the  
12 deflection/retention feature that urges the circuit board toward a final position  
13 until the circuit board clears the deflection/retention feature and snaps into place  
14 and engages one or more supports that help retain the circuit board within the  
15 housing, with the circuit board returning to a substantially flat state; and

16 attaching the assembly to a system by:

17 guiding the circuit board toward a connector of opposite gender on the system  
18 using one or more tapered alignment posts and one or more corresponding  
19 holes, wherein the one or more alignment posts and the one or more  
20 corresponding holes are distributed among the connector of the circuit  
21 board and the connector of opposite gender on the system; and

22 fastening the housing to the system.